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ABSTRACT

The Multnomah County Education Service District (MCESD) provides the following support services to the 12 school districts in its jurisdiction in the metropolitan Portland area: (1) curricular support in terms of developing measurable goals and objectives; (2) support for nationally and locally developed group tests; (3) development and field testing of test items along with Rasch calibration of the developed items; (4) special research and evaluation projects of a variety of sizes and descriptions; and (5) development and implementation of the various computer software support systems needed to support these activities. Over the past decade, the MCESD has coordinated the development and maintenance of the Tri-County Goal Development Project (T-CGDP). The T-CGDP collection of 26,000 goals has resulted in a published collection encompassing 4,500 pages organized into 13 curricular areas within 16 volumes. In addition, the Northwest Evaluation Association has produced Rasch-calibrated item banks in reading, language usage, and mathematics. MCESD has supported these developments with establishment of its own, raw, uncalibrated item banks defined by local needs. This paper describes the employment of COURSE to retrieve goals and items for customized test creation and PROTEUS for test processing. (RL)

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COURSE: Computer Retrieval for Local District Planning and Evaluation*

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BACKGROUND

The Multnomah County Education Service District (MCESD) provides a number of support services to the 12 school districts in its jurisdiction in the metropolitan Portland area. The total school enrollment in this area is approximately 88,000 students K-12. The Curriculum and Measurement departments of the ESD provide a variety of support services. These include:

1. Curricular support in terms of developing measurable goals and objectives;
2. Support for nationally and locally developed group tests;
3. Development and field testing of test items along with Rasch calibration of the developed items;
4. Special research and evaluation projects of a variety of sizes and descriptions;
5. Development and implementation of the various computer software support systems needed to support these activities.

The theoretical framework for such provision of services is that an ESD is organizationally best situated to provide *customized support service* to diverse local school districts. Particularly in the Northwest, with school district consortia established to develop definitive collections of goals and item banks, ESD's can follow a variety of feed-back mechanisms which allow for efficient and effective local district planning and test development (Wolmut).

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Several years ago, the MCESD was charged by its districts with developing a universal test processing system, UTEST, one which could theoretically handle any test from a teacher quiz to a district-wide administration of a nationally published test. This paper will focus on one part of UTEST: COURSE which consists of data bases and retrieval systems for the purposes of curricular planning and test *creation*. The second part of the system, PROTEUS, provides systems for test refining and processing.

HISTORY

Over the course of the past decade, Multnomah County ESD has coordinated the development of the Tri-County Goal structure. Master teachers and other educators from the Clackamas, Multnomah, and Washington counties of Oregon were charged with the development of a comprehensive goal structure covering all curricular areas. The current collection of 26,000 goals represents the combined efforts of several hundreds of professionals in Oregon and has resulted in a published collection of goals which encompasses approximately 4,500 printed pages organized into 13 curricular areas within 16 volumes (Tri-County Goal Development Project). This entire collection is maintained by the ESD's Measurement department in remotely accessible form on the ESD's computer system. It is therefore possible for a user in any of the districts within the County, or for that matter in the State or country, to obtain access to this collection. The Goal/Item curricular areas available in partial or complete form are summarized in Figure 1.

Goal/Item Bank Codes

Code	Subject Area	Code	Subject Area
AR	Art	MA	Mathematics
BU	Business Education	MU	Music
HE	Health Education	PE	Physical Education
HO	Home Economics	SC	Biological and Physical Science
IN	Industrial Arts	SL	Second Language
LA	Language Arts	SS	Social Studies

Figure 1

This collection of goal statements was organized around pre-defined taxonomic structures which allow for the continued re-examination of statements within this collection. It is possible, and regularly happens, that specific goal statements are refined and made more specific within this taxonomic system. (Doherty & Hathaway)

Simultaneously, the Northwest Evaluation Association has produced definitive Rasch-calibrated item banks in Reading, Language Usage, and Mathematics. MCESD has supported these developments with establishment of its own *raw, uncalibrated* item banks defined by the immediate needs of its local districts. These collections of items have all been related to the taxonomic structure of the Course Goal collections and are also maintained by the MCESD Measurement department in remotely accessible form on the ESD's computer system. (Future data bases, now under construction, will comprise audiovisual and text book materials tied to course goals).

SYSTEM USES

Educators within the area have utilized COURSE for a variety of purposes. It is possible to use a set of retrieval specifications to focus on grade, curricular area, key words, etc. By making these retrieval specifications broad or narrow, it is possible to "look" at a collection to gain ideas for future educational developments and/or changes. For example, the curriculum as currently defined may focus on a subset of a total set of possible variables. By using a broad scale retrieval statement a listing of the total range of variables can be produced very quickly. The educator using the system in this fashion has, in a short period of time essentially, been able to capitalize on the combined efforts of the collection developers to better understand, perhaps, the full extent of a particular curricular area.

It is also possible to examine a set of locally developed goals to see the degree to which their depth of coverage is a complete description of the 13 curricular areas available. In this way the collections can serve as sounding boards for further curriculum planning.

Once a district has tentatively defined a curricular scope and sequence, the

item collections can be addressed to create potential assessment instruments. Since the items have been developed under workshop conditions in which the writers were trained to avoid usual item writing flaws, such tests tend to be free from the more common errors which psychometrists wish to avoid.

The item collections can be addressed independently of the goal collections, although the ESD discourages this as the primary *modus operandi* for local users. In this way teachers and administrators can look at items as "models" of the kind of assessment devices they wish to create. Since the item collections are not restricted to multiple choice and other paper-and-pencil styles, this becomes an important use particularly in the area of essay and performance type testing.

The system is, in short, in place as a resource - not as a prescription dictating specific programs of instruction assessment at the local level. By using this system in its computerized version, it is possible to quickly search outcomes and items in an entire curricular area. It is also important to point out that these retrievals reside in the hands of the independent users of the system.

EXAMPLE

Goal and item retrieval can be accomplished through use of a subset of eight computer commands. (Four commands are required for a retrieval to take place.) These commands, found in Figure 2, allow the user to operate with flexibility in accessing material which is stored in computer files.

Figures 3 and 4 list the retrieval variables which can be used in a FIND statement. These variables can be used individually or in combination. Retrieval statements can be created which best serve the needs of the user. Obviously, the more complex the statement the fewer goals/items will be successfully retrieved. Figure 5 shows an entire goal and item retrieval dialogue on a computer terminal, while Figure 6 shows the retrieval output.

Goal retrieval commands

1. OPEN <bank><, bank> <ALL>
   Required, open the desired bank(s)

2. FIND <logical-expression>. . . .
   Required, specify parameters used in retrieval

3. SORT <variable><, variable>. . . .
   Optional, will cause printing of goals in specified order

4. REPORT <item-list><, item-list>. . . . <ALL>. . <; OFFLINE>
   Required, specifies what is to be printed

5. SAVE <file-name>
   Optional, will cause retrieved GOALS to be saved

6. GO
   Required, causes specified retrieval to begin

7. EXIT
   Required, used to terminate use of GOAL/ITEM system

Item retrieval commands

1. OPEN (same as above)

2. FIND (same as above)

3. REPORT (same as above)

4. GOALS <file-list><, file-list>. . . .
   Optional, uses goals SAVEd above

5. GO (same as above)

6. EXIT (same as above)

Figure 2

Goal Retrieval Variables

ITEM NAME	RETRIEVAL VARIABLE	SORT VARIABLE	DESCRIPTION
TAXONOMY	YES	YES	Taxonomic heading.
LEVEL	YES	YES	P, I, U, or H levels.
KPV-CLASS	YES	YES	Knowledge, process and value classifications.
PROG-GOALS	YES	YES	Subject area program goals.
CAREER-ED	YES	YES	Career education program goal
WORDS	YES	NO	Concept and value words.
BANK	YES	NO	The goal collection to which goal belongs.
RELATED-TAX	NO	NO	Related taxonomies.
TEXT	NO	NO	The text of the goal.

Figure 3

Item Retrieval Variables

ITEM NAME	RETRIEVAL VARIABLE	DESCRIPTION
ITEMNO	YES	Item number.
SOURCE	YES	Source of the item.
GRADE	YES	Grade level of item.
SPECIALDIR	YES	Special directions flag (either yes or no).
GRAPHIC	YES	Graphic identification.
CALIB	YES	Rasch Calibration.
SE	YES	Standard error of Rasch calibration.
TAXONOMY	YES	Taxonomy of goals which this item measu
BANK	YES	The item bank to which the item belongs
LEVEL	YES	P, I, U, or H level of the item.
KEY	NO	Correct answer key for the item.
TEXT	NO	The actual text of the item.

Figure 4

```
:GOALS


GOALS  VERSION 2.3    THU, APR  2, 1981,  1:38 PM
) OPEN LA

) FIND TAXONOMY EQ '5.5.5/1'

) SAVE GPTGOALS

) REPORT ALL;OFFLINE

) GO

     1 GOAL(S) RETRIEVED FROM COLLECTION LA
) EXIT

END OF PROGRAM
:ITEMS


ITEMS  VERSION 1.4    THU, APR  2, 1981,  1:39 PM
) OPEN LA

) GOALS GPTGOALS

) FIND ALL

) REPORT ALL;OFFLINE

) GO


   11 ITEM(S) RETRIEVED FROM COLLECTION LA
) EXIT

END OF PROGRAM
```

Figure 5

```
      1 GOAL(S) RETRIEVED FROM COLLECTION LA
GOAL: LA 5.5.5/1                    (    1 OF    1)
    THE STUDENT IS ABLE TO PROOFREAD      LEVEL:  U  M
TO CORRECT SPELLING, GRAMMAR, AND         CLASSIFICATIONS: P75
SYNTACTICAL ERRORS; TO ASSURE CON-        PROGRAM GOALS:  7
SISTENCY AND ACCURACY OF PUNCTUATION;     CAREER ED GOALS:  5
AND TO CHECK LEGIBILITY OR TYPING
ACCURACY.
WORDS:  ACCURACY
```

```
   11 ITEM(S) RETRIEVED FROM COLLECTION LA

ITEM: LA 000266
 SOURCE: ALPHA                                GRADE: 2
 LEVEL: P                                     SPECIAL DIRECTIONS: N
 KEY: C
GOALS:   5.5.5/1
WHICH SENTENCE IS CORRECT
    A-TEDDY AND ME COMED TO PLAY WITH
      YOU
    B-ME AND TEDDY CAME TO PLAY WITH
      YOU
    C-TEDDY AND I CAME TO PLAY WITH YO
    D-TEDDY AND ME CAME TO PLAY WITH
      YOU

ITEM: LA 000267
 SOURCE: ALPHA                                GRADE: 2
 LEVEL: P                                     SPECIAL DIRECTIONS: N
 KEY: B
GOALS:   5.5.5/1
WHICH SENTENCE IS CORRECT
    A-ME RIDED ARE BIKE TO THE STOR
    B-ME RODE OUR BIKE TO THE STORE
    C-ME RIDED OURE BIKE TOO THE STORE
    D-ME RODE OUR BIKS TO THE STOR
ITEM: LA 000268
 SOURCE: ALPHA                                GRADE: 4
 LEVEL: I                                     SPECIAL DIRECTIONS: N
 KEY: D
GOALS:   5.5.5/1
WHICH SENTENCE IS CORRECT
    A-THEYLL WANT TO KNOW IF I GOED
      HOME
    B-THEYLL WANT TO NO IF I WENT HOME
    C-THEY'LL WANT TO NO IF I GOED HOM
    D-THEY'LL WANT TO KNOW IF I WENT
      HOME
ITEM: LA 000269
 SOURCE: ALPHA                                GRADE: 4
 LEVEL: I                                     SPECIAL DIRECTIONS: N
 KEY: B
GOALS:   5.5.5/1
WHICH SENTENCE IS CORRECT
    A-DID SHE CAME TO THE PARTY TO
    B-DID SHE COME TO THE PARTY TOO?
    C-DID SHE COME TO THE PARTY TWO?
    D-DID SHE COME TO THE PARTY TO?
ITEM: LA 000270
 SOURCE: ALPHA                                GRADE: 9
 LEVEL: U                                     GRAPHIC ID:    2
 SPECIAL DIRECTIONS: N                        KEY: D
GOALS:   5.5.5/1
WHAT CHANGE SHOULD BE MADE IN LINE (1)
    A-THE COMMA AFTER THE WORD PARK IS
      NOT NEEDED
    B-MARI'S SHOULD NOT CONTAIN AN
      APOSTROPHE
    C-ENDING PUNCUATION SHOULD BE AN
      EXCLAMATION POINT
    D-NONE-THE SENTENCE IS CORRECT AS
      WRITTEN
```

```
ITEM: LA 000271
 SOURCE: ALPHA                                GRADE: 9
 LEVEL: U                                     GRAPHIC ID:    2
 SPECIAL DIRECTIONS: N                        KEY: A
GOALS:   5.5.5/1
WHAT IS NEEDED TO CORRECT LINE (2)
    A-A COMMA SHOULD BE INSERTED AFTER
      SAN FRANCISCO
    B-ONE CAPITALIZED WORD SHOULD NOT
      CAPITALIZED
    C-AN APOSTROPHE SHOULD BE USED IN
    D-THE SENTENCE IS CORRECT AS WRITT
ITEM: LA 000272
 SOURCE: ALPHA                                GRADE: 9
 GRAPHIC ID:    2                             SPECIAL DIRECTIONS: N
 KEY: C
GOALS:   5.5.5/1
WHAT CHANGE SHOULD BE MADE IN LINE (1)
    A-A COMMA SHOULD BE INSERTED AFTER
      SEQUOIA
    B-CONTINENTAL SHOULD BE CAPITALIZE
    C-A COMMA SHOULD BE INSERTED AFTER
      STATE
    D-MT. SHOULD NOT BE CAPITALIZED
ITEM: LA T23288
 SOURCE: NWEA                                 KEY: 2
GOALS:   5.5.5/1
ON YOUR ANSWER SHEET DECIDE IF THE
FOLLOWING SENTENCE IS CORRECTLY
WRITTEN.

  THEY GIVE A REPORT LAST MONTH.

  1:  CORRECTLY WRITTEN
  2:  NOT CORRECTLY WRITTEN

ITEM: LA T23289
 SOURCE: NWEA                                 KEY: 1
GOALS:   5.5.5/1
READ THE SENTENCE BELOW.  IS IT
CORRECTLY WRITTEN?  MARK YOUR ANSWER.

  HE DOESN'T LIKE TO RUN.

  1.  CORRECTLY WRITTEN
  2.  NOT CORRECTLY WRITTEN
ITEM: LA T23375
 SOURCE: NWEA                                 KEY: 3
GOALS:   5.5.5/1
DIRECTIONS:  WHICH PUNCTUATION MARK,
             IF ANY, IS NEEDED IN THE
             FOLLOWING SENTENCE?

  I SUGGEST THAT YOU DRESS WARMLY IF
  YOU TRAVEL TO MT HOOD

  1:  !
  2:  ,
  3:  .
  4:  NONE


ITEM: LA X23218                                KEY: 2
 SOURCE: NWEA
GOALS:   5.5.5/1
WHICH SENTENCE IS WRITTEN CORRECTLY?

  1.  MY UNCLE SAID, "THAT I COULD
      VISIT THIS SUMMER."
  2.  MY UNCLE SAID THAT I COULD
      VISIT THIS SUMMER.
  3.  MY UNCLE SAID, "THAT I COULD
      VISIT THIS SUMMER."
  4.  MY UNCLE SAID, "THAT I COULD
      VISIT THIS SUMMER."
```

Figure 6

REFERENCES

Doherty, Victor & Hathaway, Walter *Introduction to Course Goals for Educational Planning & Evaluation* (Portland, OR: CEDS), 1973

Tri-County Goal Development Project, *K-12 Course Goals* (Portland, OR: CEDS), 1971-1981

Wolmut, Peter *Educational Service District Provision of Planning/Evaluation Services to Local Educational Agencies*, Paper presented to Washington Educational Research Association Research Conference, Seattle, WA., May 1978

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April 17,1981

Multnomah County E.S.D. Universal Testing System (UTEST)

DIVISIONS

COURSE – for planning and for test creation

PROTEUS – for processing test information

DATA BASES UNDER COURSE*

1. GOALS (Tri-County Goal Collections)
2. ITEMS (Northwest Evaluation Association banks and Multnomah County uncalibrated item collections) 1981
3. FILMS (Goal-referenced audio-visual material) 1983
4. TEXTS (Goal-referenced textbook material) 1985

DATA BASES AND PROCESSES UNDER PROTEUS

1. RASCH (Rasch analysis) 1981
2. SPSS (Statistical Package for the Social Sciences) 1982
3. LSR (Longitudinal student records) 1982
4. MINST (Remote immediate processing of local tests) 1982
5. LEVEL (Central immediate processing of Portland Level Tests) 1981

For further details, contact:

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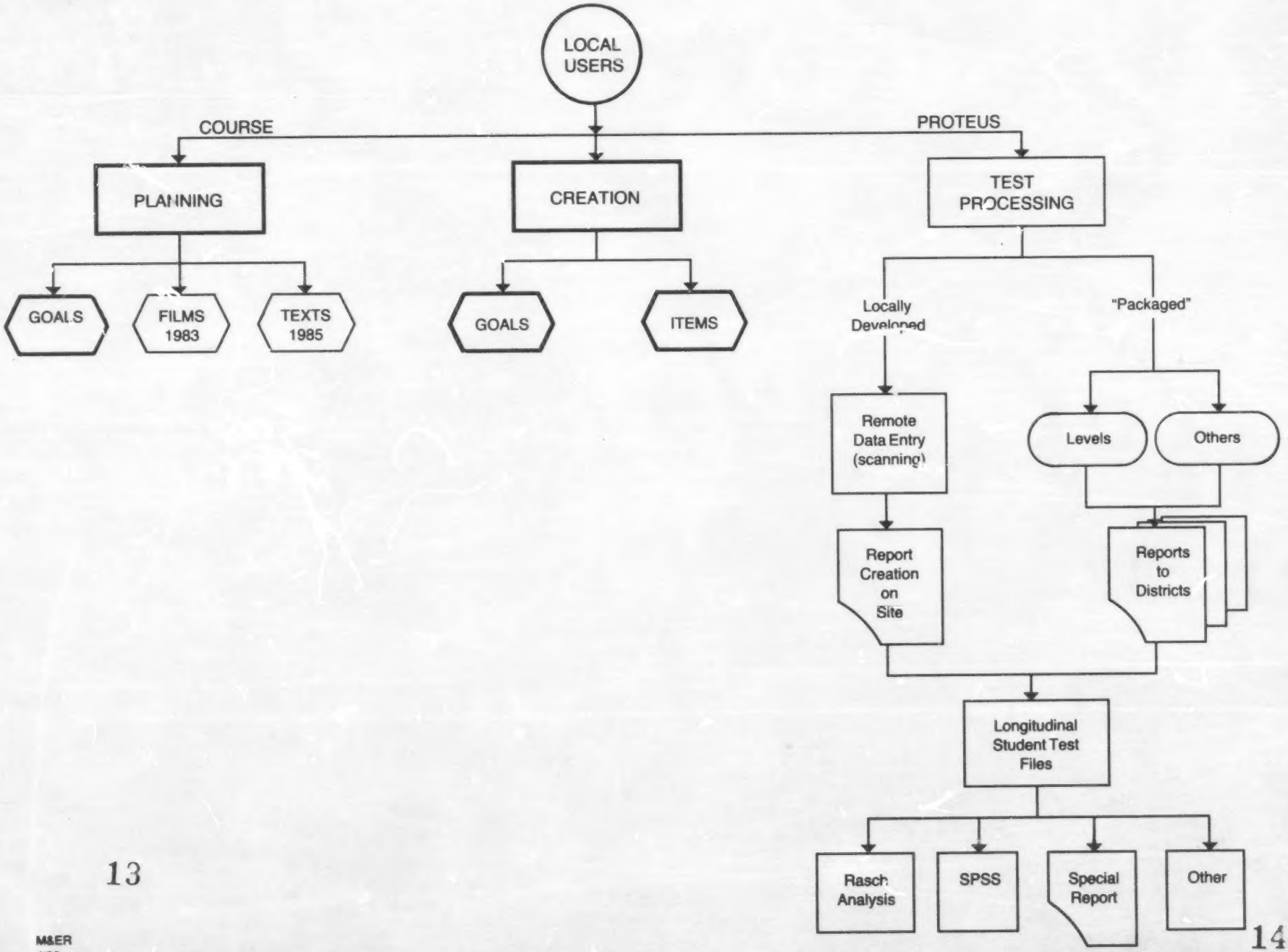
Specialist, Measurement System & Analysis
Multnomah County E.S.D.
P.O. Box 16657
Portland, OR 97216

*For further information concerning access to COURSE, contact:

Ray Miller
NWEA Development Center
c/o E.S.D. 121
1410 S. 200th Street
Seattle, WA 98148

UTEST



M&ER
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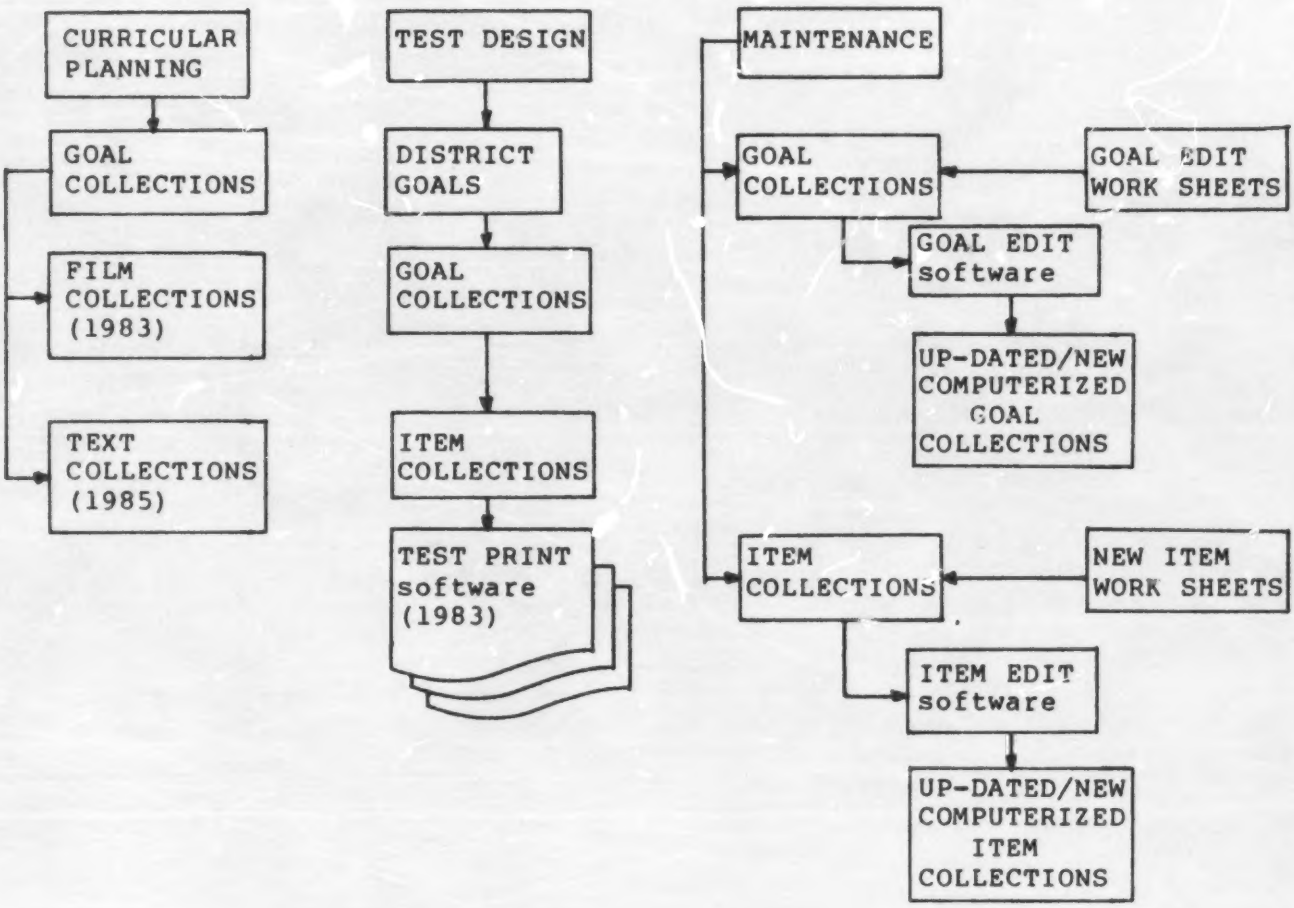
U T E S T
(COURSE sub-system)



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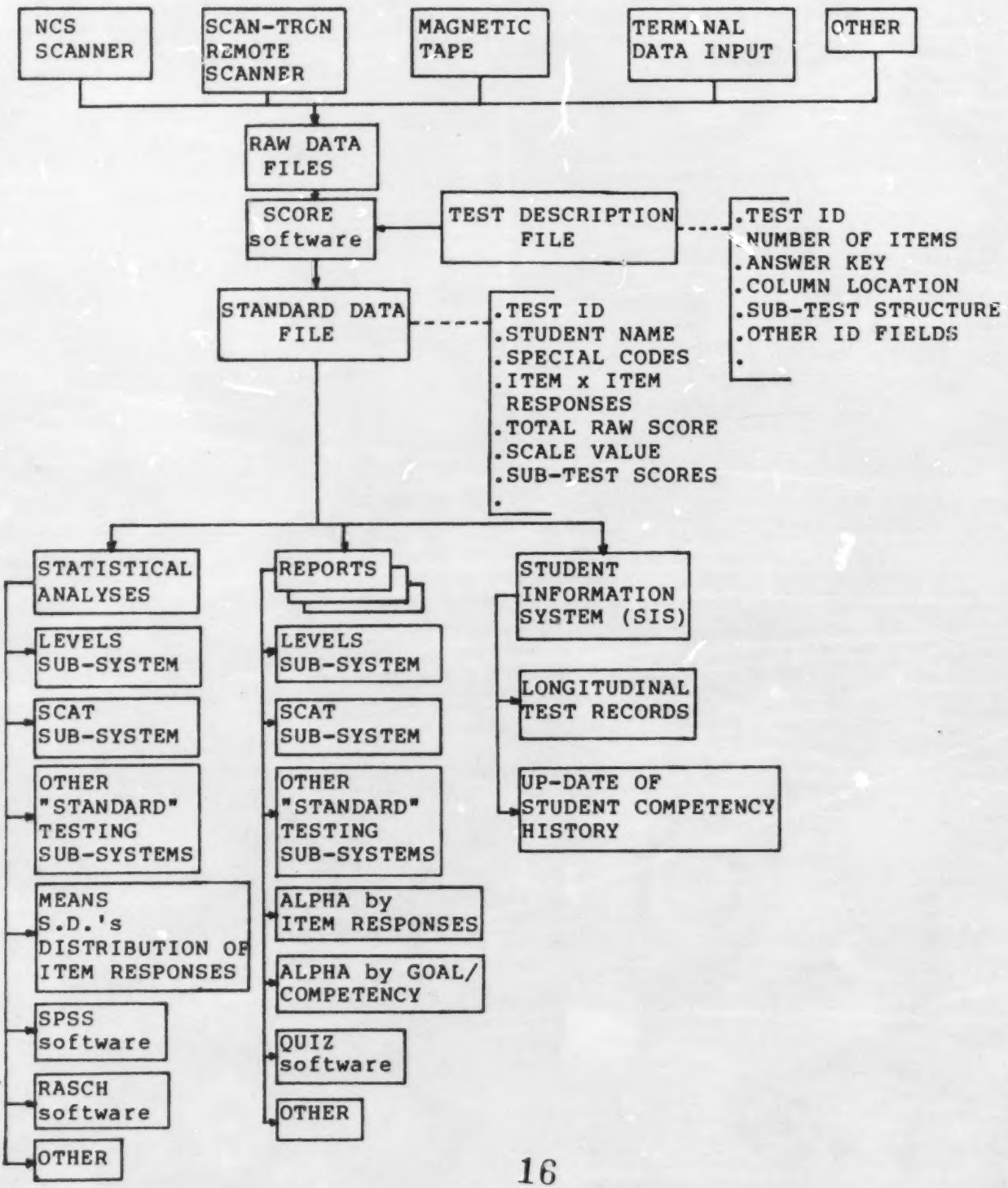

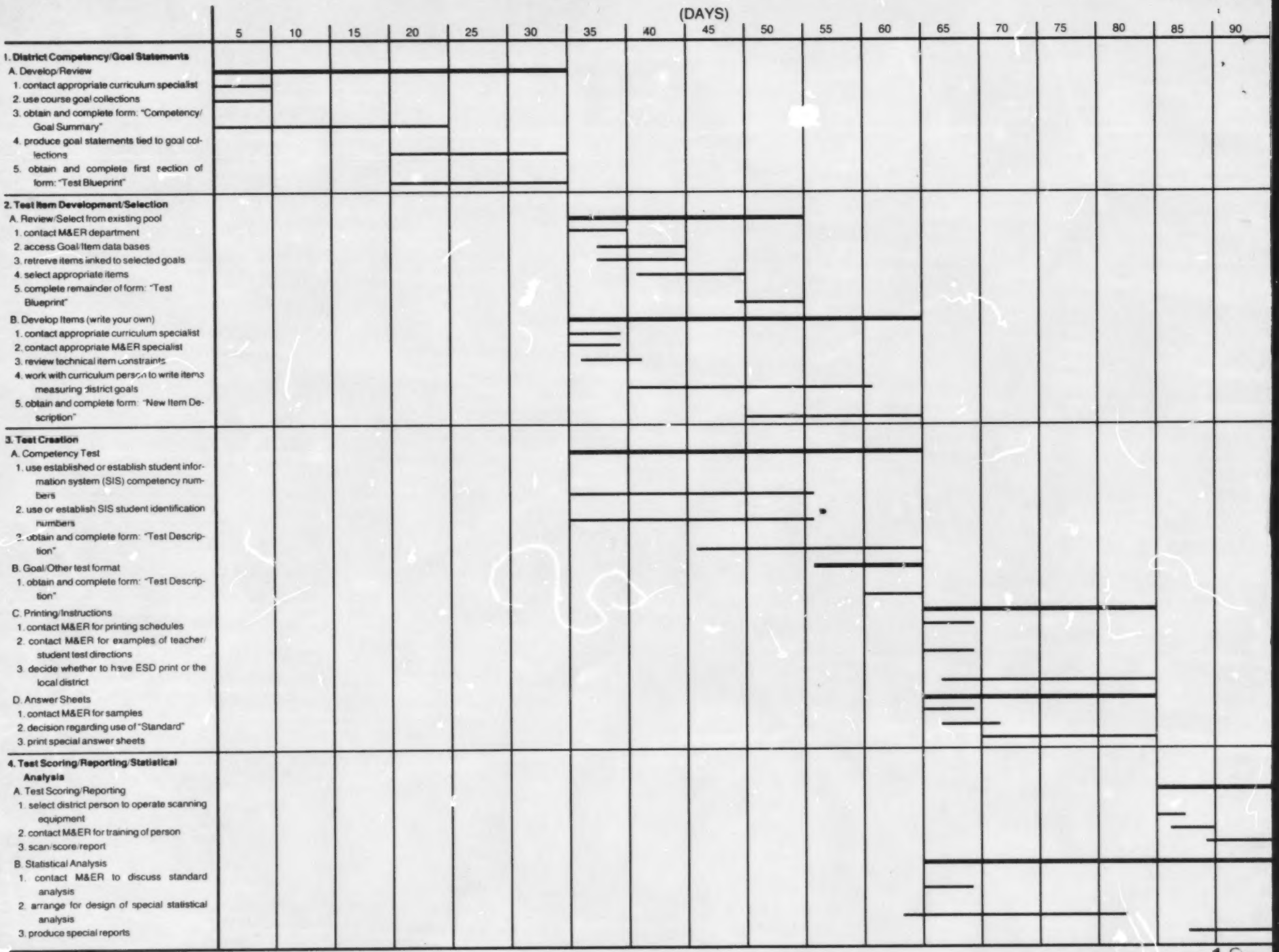
(DAYS)
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1. District Competency/Goal Statements
A. Develop/Review
1. contact appropriate curriculum specialist
2. use course goal collections
3. obtain and complete form: "Competency/ Goal Summary"
4. produce goal statements tied to goal collections
5. obtain and complete first section of form: "Test Blueprint"
2. Test Item Development/Selection
A. Review/Select from existing pool
1. contact M&ER department
2. access Goal/Item data bases
3. retreive items linked to selected goals
4. select appropriate items
5. complete remainder of form: "Test Blueprint"
B. Develop Items (write your own)
1. contact appropriate curriculum specialist
2. contact appropriate M&ER specialist
3. review technical item constraints
4. work with curriculum person to write items measuring district goals
5. obtain and complete form: "New Item Description"
3. Test Creation
A. Competency Test
1. use established or establish student information system (SIS) competency numbers
2. use or establish SIS student identification numbers
3. obtain and complete form: "Test Description"
B. Goal/Other test format
1. obtain and complete form: "Test Description"
C. Printing/Instructions
1. contact M&ER for printing schedules
2. contact M&ER for examples of teacher/ student test directions
3. decide whether to have ESD print or the local district
D. Answer Sheets
1. contact M&ER for samples
2. decision regarding use of "Standard"
3. print special answer sheets
4. Test Scoring/Reporting/Statistical Analysis
A. Test Scoring/Reporting
1. select district person to operate scanning equipment
2. contact M&ER for training of person
3. scan/score/report
B. Statistical Analysis
1. contact M&ER to discuss standard analysis
2. arrange for design of special statistical analysis
3. produce special reports